

ABSTRACT OF THE DISCLOSURE  
ENQUEUING APPARATUS FOR ASYNCHRONOUS TRANSFER MODE (ATM)  
VIRTUAL CIRCUIT MERGING

5           A system and method for merging multiple connections  
that share a same class of service into a single virtual  
circuit (VC) connecting a first switching node to a second  
switching node in an Asynchronous Transfer Mode (ATM)  
network. In accordance with the system of the present  
10 invention, a data buffer stores cells that constitute a  
packet received by a switching node. A queuing apparatus  
includes multiple connection queues associated respectively  
with each of the connections, and further includes a  
scheduled queue corresponding to a particular class of  
service, wherein contents of the connection queues are  
transferred into the scheduled queue before being  
transmitted on the VC. A reassembly queue control block  
(RQCB) is associated with each of the connection queues,  
and defines a chain of buffer control blocks. Each buffer  
control block corresponds to a cell belonging to a packet  
transmitted in a particular connection. Each buffer  
20 control block also includes a next buffer address in the  
data buffer and a lock bit that is normally set to 1 for an  
incoming cell and is set to 0 for an incoming cell only if  
the incoming cell is a last cell of the packet. A  
25 scheduled queue control block (SQCB) is associated with the  
scheduled queue to which the chain of buffer control blocks  
is transferred in response to a determination that the lock  
bit of a cell stored within the data buffer is set to 0. A  
30 corresponding buffer control block is chained to the chain  
of buffer control blocks in the SQCB without having been  
previously queued in the RQCB.